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(54) A process for manufacturing colored contact lenses, and the lenses obtained by the process.

(57) A process for manufacturing colored contact lenses, and the lenses obtained by the process, based esentially in the discovery that it is possible to apply the colorant (or color layers) to the convex or concave face of the manufacturing mold in such a way that the desired iris imprint is later infiltrated into the lens till final embodiment next to the selected surface. The resulting cosmetic contact lens has a transparent pupil section and a colored annular region whose structure, covering entirely the user's iris, conceals it partially by means of a screen that contours conveniently the visible pigmented layers of the human iris, chromatically intermingling with the pattern of said iris. This lens is capable of modifying the perceptible iris color of the user, while retaining a natural appearance, even under almost near vision onlooker gaze.

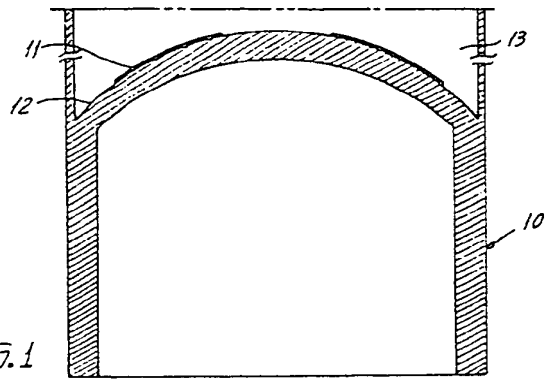

FIG. 1

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terial, which can be hard, soft or gas permeable.
- Once the mold is filled and the pertaining polymerization is concluded, the colored blank is ready; if it is demolded it will be seen that the iris imprint has been transferred from the mold to the body of the future contact lens, next to its posterior finished surface.
- The front surface of the colored lens is finally obtained by lathing and polishing, as with any regular transparent contact lens produced by the cast base molding method.

This same offset pad printing process may be used to color contact lenses obtained by the cast molding manufacturing method by printing the iris either on the concave or convex mold.

Preferred colorants for both processes, comprising pigments and binders, are those described in Argentine patents applications Nrs. 308.047, 309.706 cited here by way of reference.

Although incorporation of the iris imprint within the body of the lens is in both cases complete, further encapsulation of the same may be obtained by pre-coating the manufacturing mold convex or concave surface with one or more layers of the lens material, using the offset pad printing machine with a blank annular plate, allowing at least one hour drying period at 80° C, prior to the color coating formerly mentioned.

Even though the present invention has been described in certain detail by way of ilustrations and general examples for purpose of comprehension, it is understood that minor changes and modifications may be introduced without deviating from its original spirit and scope, that imply clear advantages over prior art techniques:

1. Ideal incorporation of pigments into the body of the lens, thus ensuring ocular tissue safety and unfading cosmetic effect during the lens' lifespan.

2. More natural appearance than lenses printed on the surface, without increasing its thickness.

Claims

1. Process for manufacturing colored contact lenses by "cast base curve molding", either with supporting mold or "bonnet", or by "cast molding", comprising providing a convex or concave plastic mold, and eventually recovering its surface with one or more layers of the lens material, by offset pad printing with a blank annular plate, drying the imprint at a temperature no higher than 80° C and then depositing colorant directly on the mold by offset pad printing, using a photomecanically engraved plate with and adequate design of the human iris, subjecting the mold to a temperature no higher than 80° C, filling the mold with the lens material, polymerizing the resulting blank or bonnet and finishing it by lathing and polishing, to obtain a contact lens with a transparent pupil section and a colored annular region whose estructure, covering entirely the user's iris, conceals it partially by means of a screen which conveniently contouring the pigmented visible layers of the human iris, is made up of minute opaque, translucent and transparent portions that chromatically intermingle with the pattern of said iris, whereby resulting in a cosmetic contact lens capable of modifying the perceptible iris color of the user, while retaining a natural appearance, even under almost near vision onlooker gaze.

2. A process as set forth in claim 1, wherein the manufacturing method is cast molding, thus obtaining a finished cosmetic contact lens, without further lathing, by printing the iris either on the concave or convex manufacturing mold.

3. The process of claim 1, wherein the lens is obtained from hydrophilic materials.

4. The process of claim 1, wherein the lens is obtained from PMMA.

5. The process of claim 1, wherein the lens is obtained from gas permeable materials.

6. The process of claim 2, wherein the lens is obtained from hydrophilic materials.

7. The process of claim 2, wherein the lens is obtained from PMMA.

8. The process of claim 2, wherein the lens is obtained from gas permeable materials.

9. As an article of manufacture, a contact lens capable of modifying the perceptible iris color of the lens user, whose colored annular region, obtained as described in claims 1 and 2, and covering entirely the user's iris, is incorporated in the body of the lens, next to its posterior or anterior surface, so as to conceal partially said iris by means of a screen which conveniently contouring the colored visible layers of the human human iris, chromaticaly intermingle with its pattern, thus resulting in a change of the perceptible iris color of the wearer, while retaining a natural appearance, even under almost near vision onlooker gaze.

10. The contact lens of claim 9, manufactured from hydrofilic materials.

11. The contact lens of claim 9, manufactured from PMMA.

12. The contact lens of claim 9, manufactured from gas permeable materials.

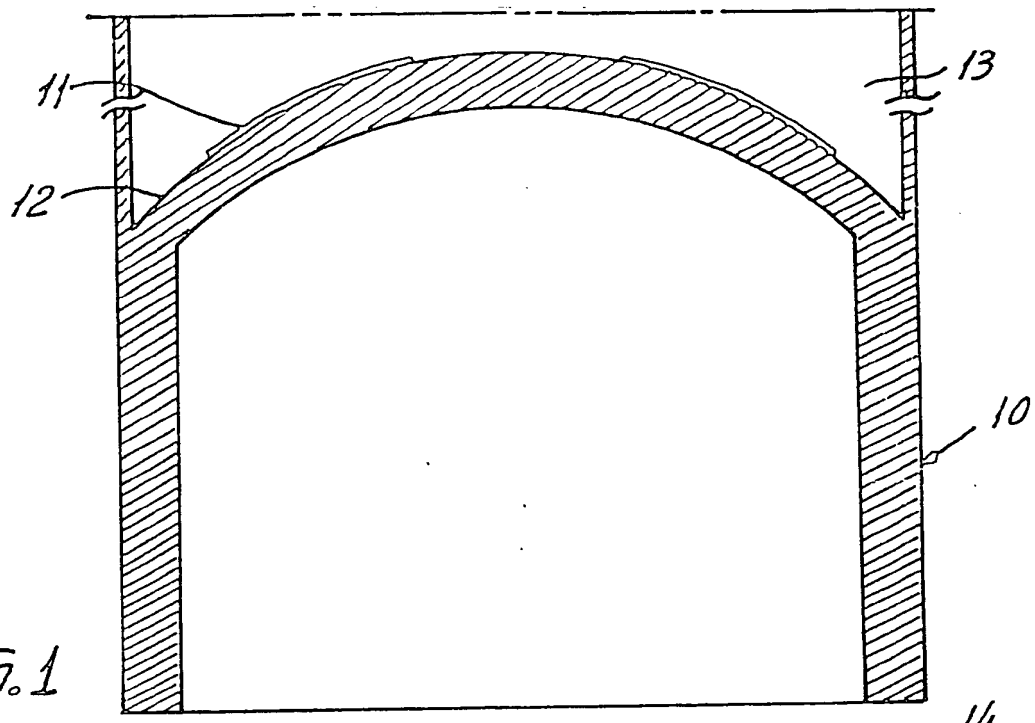

FIG. 1

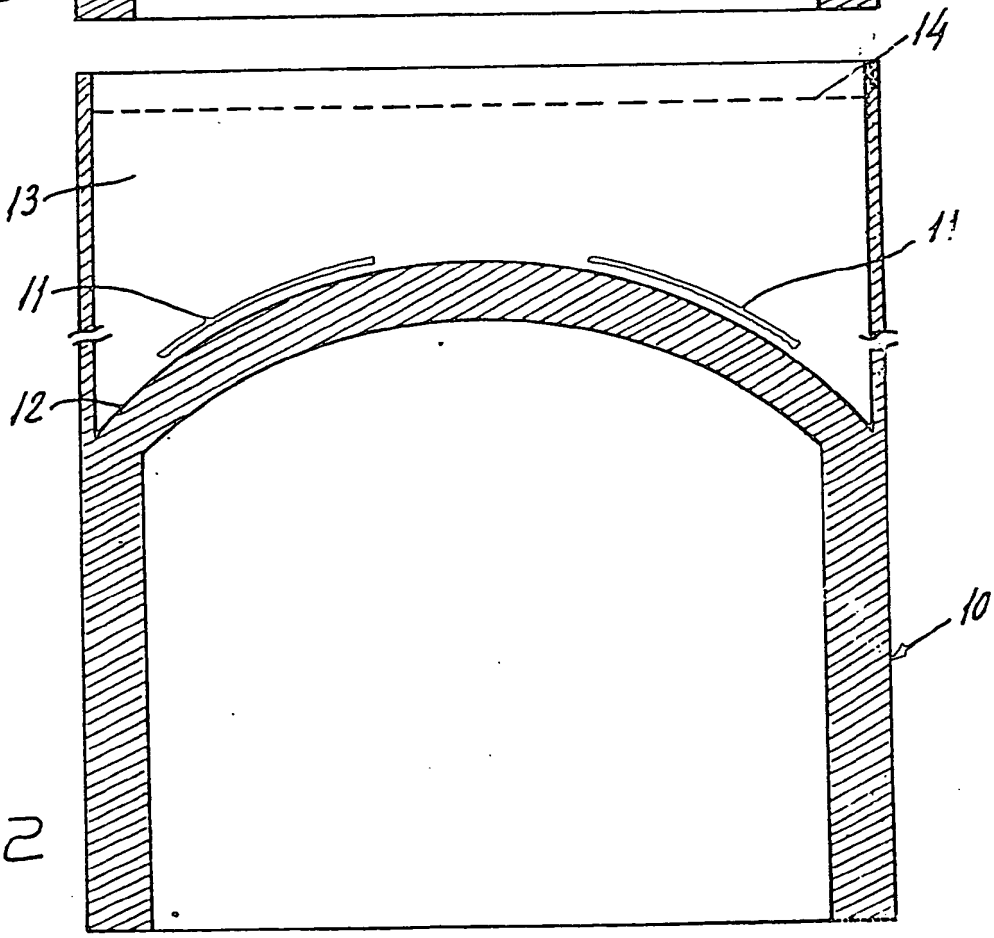

FIG. 2

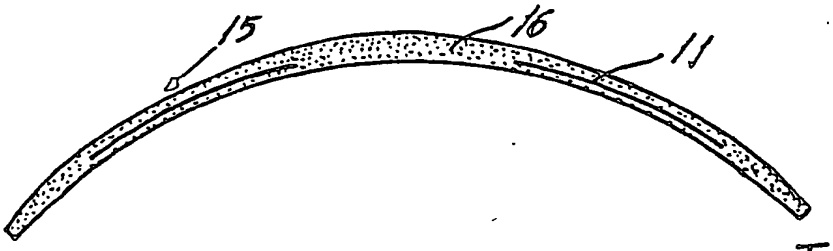

FIG.3

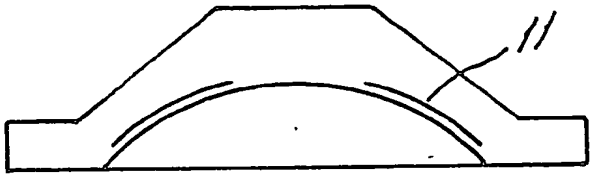

FIG.4

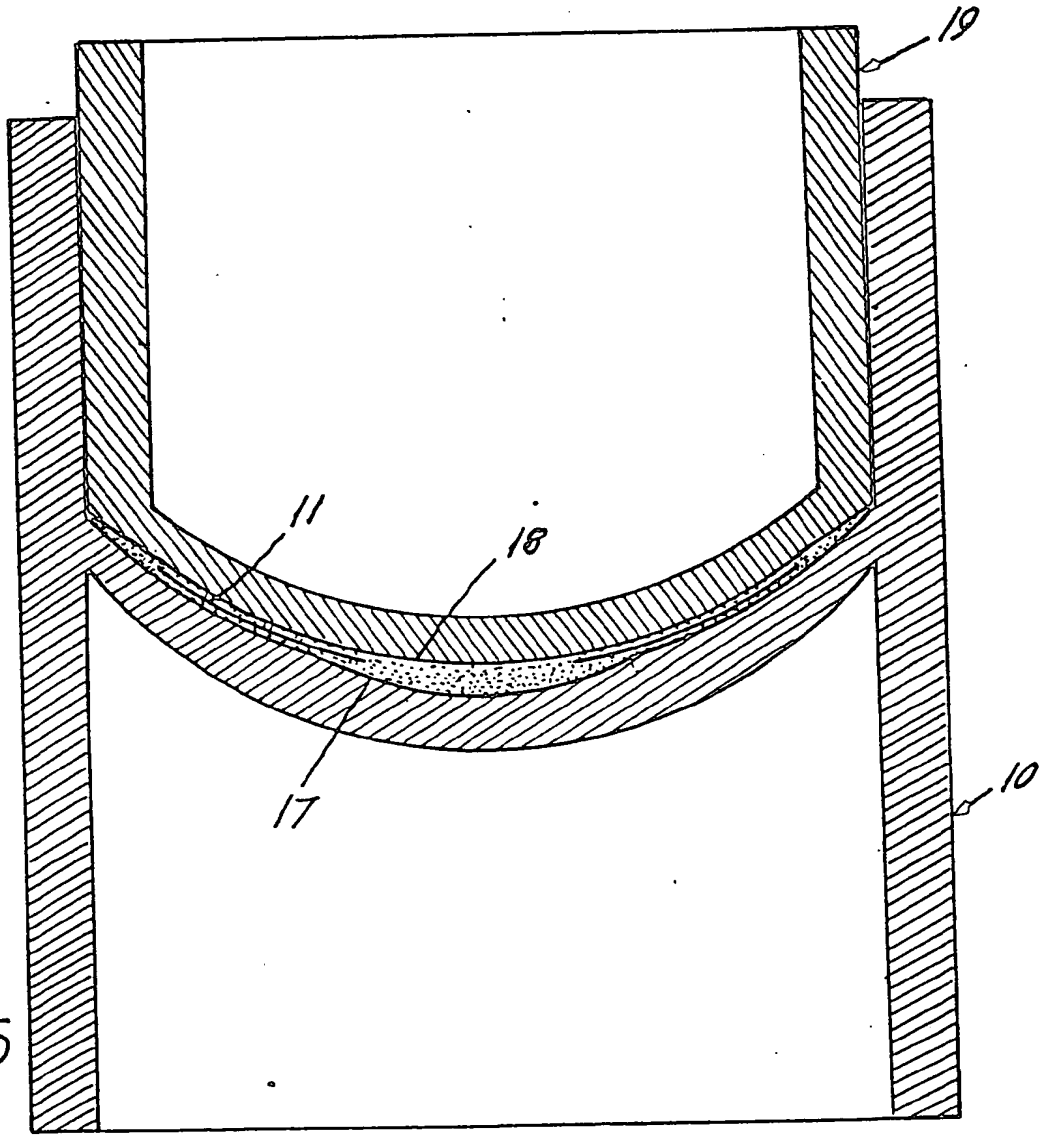

FIG.5

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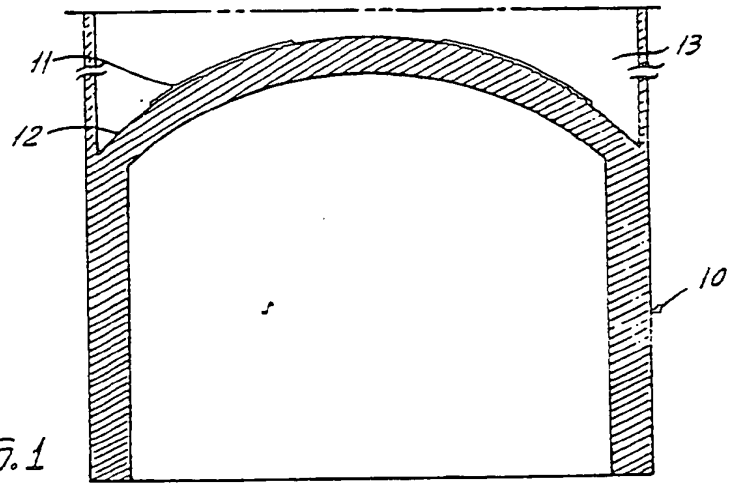

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number

EP 89 11 6057

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 640 805 (NEEFE) * Column 2, lines 54-58; column 3, lines 12-16,25-30; figures 2,4 * -----	1-12	B 29 D 11/00

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 29 D
G 02 C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	05-06-1990	ATTALLA G.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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